Amendments to the Specification:

Paragraph beginning on page 1, line 7

a1

Optical communication systems are becoming more and more widespread mainly due to ~~the~~ their very large information carrying bandwidths ~~they have for carrying information~~. The growth and diversity of lightwave networks, such as Wavelength Division Multiplexed (WDM) networks are placing new demands on all aspects of optical networks including, for example, capacity management and provisioning, maintenance, and reliable and robust operation. In addition, the current trend in many carrier networks is to implement standard IP based networks to achieve convergence of traditionally separate voice and data networks. To this end, the use of Ethernet based equipment in ~~implanting~~ implementing carrier networks is becoming increasingly common.

Paragraph beginning on page 2, line 1

a2

In a ring topology each ring node is connected to exactly two other ring nodes. The OADMs are used to construct a ring network whereby adjacent OADMs are connected pair wise while the network nodes are situated ~~so as~~ to form a ring. In a ring network, any node can be reached from any other node using two physically separate paths, i.e. one traveling clockwise and ~~one~~ the other counter clockwise. ~~This is~~ The opposite traveling paths are used ~~for providing~~ to provide protection against route failures. The use of at least two parallel fibers with traffic flowing in opposite directions provides restoration capabilities in the event of a fiber cut ~~break~~.

Paragraph beginning on page 2, line 8

a3

An Add/Drop Optical Multiplexer (ADOM) functions to filter or drop one or more wavelengths ~~transiting~~ transmitted on the ring. The optical technologies ~~usable~~ typically used for producing an ADOM can be placed in two main categories, namely: (1) those using fixed filtering, whereby an ADOM is produced for dropping and adding a fixed wavelength, and (2) those using tunable filtering, whereby an external control determines the wavelength of the dropped and added channel.

Paragraph beginning on page 2, line 19

a4

As is common practice in DWDM optical ~~network~~ networks, optical add/drop multiplexers (OADMs) are used to drop, add or express one or more optical channels. A block diagram illustrating a typical structure of an Optical Add/Drop Multiplexer (OADM) is shown in Figure 2A. The OADM, generally referenced 20, comprises drop module 22 adapted to generate a drop channel

26 from the multi-wavelength input signal and an add module 24 adapted to add a channel 28 to the multi-wavelength output signal.

Paragraph beginning on page 2, line 25

a5 A problem associated with such types of optical networks is the losses incurred from the passive optical devices, such as filters, couplers, multiplexers, etc. The losses, which exist at every node on the network, can increase as the number of optical components increases, such as in networks with large numbers of nodes,

Paragraph beginning on page 4, line 1

a6 One prior art solution to this problem is to open the optical ring. A block diagram illustrating a prior art optical ring network that attempts to solve the amplifier noise accumulation problem is shown in Figure 3. The example network, generally referenced 40, comprises five nodes 42, labeled node #1 through node #5, connected by link 48. The link between nodes #1 and #5 is severed leaving two stubs 46, 44. The problem of noise creep is eliminated since the optical signal begins and terminates within a single rotation.

Paragraph beginning on page 6, line 2

a7 The present invention comprises an optical network terminator for terminating an optical network. The invention is applicable to optical networks having any kind of topology such as optical ring networks, point-to-point networks, mesh networks, star networks, etc. Further, the invention comprises a filter that can be implemented using any suitable technology such as multiplexer/demultiplexer, Fiber Bragg Grating (FBG) based filters, etc. In addition, the invention is not limited to the type of wavelength content. The optical network may implement Dense ~~Wave~~ Wavelength Division Multiplexing (DWDM), WDM, Coarse ~~Wave~~ Wavelength Division Multiplexing (CWDM), Wide ~~Wave~~ Wavelength Division Multiplexing (WWDM), etc., a specific wavelength or can be any type of non-WDM based network. Use of the present invention eliminates the prior art problems of noise accumulation regardless of its source, such as Amplifier Spontaneous Emission (ASE) noise, thermal noise, noise due to non-linear effects, etc.

Paragraph beginning on page 6, line 18

a8 The optical terminator is operative to overcome the problems associated with the prior art by breaking the [[a]] link between two nodes and placing an optical noise filtering mechanism, termed an 'optical network terminator,' therebetween. For example, in the case of an optical ring network, the invention breaks the ring and places the optical terminator ~~therein~~ between two nodes. The 'optical terminator' ~~may comprise~~ denotes any suitable filtering mechanism including but not limited

to an optical demultiplexer coupled to an optical multiplexer, optical add/drop multiplexer, Fiber Bragg Gratings, polarization based devices, etc. It is appreciated, however, that other types of optical filtering schemes may be used without departing from the scope of the invention. The 'optical terminator' functions to filter each individual wavelength of light and generate a multi-wavelength optical output with the accumulation of noise removed, including amplifier noise. The filtering out of the noise accumulation occurs in the optical domain without the need for optical to electrical and electrical to optical conversion. The filter, e.g., combination of optical demultiplexer and multiplexer (or any other optical filtering method), functions to pass for each channel a 'cleaned' signal wherein the noise has been removed.

Paragraph beginning on page 10, line 3

The following notation is used throughout this document.

Term	Definition
ADOM	Add Drop Optical Multiplexer
ASE	Amplifier Spontaneous Emission
ASIC	Application Specific Integrated Circuit
CPU	Central Processing Unit
DSP	Digital Signal Processor
WWDM	Wide ~~Wave~~ Wavelength Division Multiplexing
CWDM	Coarse ~~Wave~~ Wavelength Division Multiplexing
DWDM	Dense ~~Wave~~ Wavelength Division Multiplexing
EDFA	Erbium Doped Fiber Amplifiers
EEROM	Electrically Erasable Read Only Memory
FBG	Fiber Bragg Grating
FPGA	Field Programmable Gate Array
IP	Internet Protocol
LAN	Local Area Network
MAN	Metropolitan Area Network
OADM	Optical Add Drop Multiplexer
OBPF	Optical Band Pass Filter
OEO	Optical Electrical Optical
RAM	Random Access Memory
ROM	Read Only Memory
WAN	Wide Area Network
WDM	~~Wave~~ Wavelength Division Multiplexing

a9

Paragraph beginning on page 10, line 15

Further, the invention comprises a terminator that can be implemented using any suitable technology such as multiplexer/demultiplexer combination, Fiber Bragg Grating (FBG) based filters, Optical Band Pass Filters (OBPFs), filters based on polarization based devices, etc. In addition, the invention is not limited to the type of wavelength content. The optical network may implement

a10

Dense ~~Wave~~ Wavelength Division Multiplexing (DWDM), WDM, CWDM, WWDM, etc., a specific wavelength or can be any type of non-WDM network as well. Use of the present invention eliminates the prior art problems of noise accumulation regardless of its source, such as Amplifier Spontaneous Emission (ASE) noise, thermal noise, noise due to non-linear effects, etc.

Paragraph beginning on page 11, line 15

a 11

The example network described herein employs a plurality of nodes wherein each node employs one or more OADMs, each corresponding to a single wavelength. The network also employs optical amplifiers such as Erbium Doped Fiber Amplifiers (EDFAs), for example. Throughout this document, the term add drop multiplexer ~~means~~ denotes transmission equipment ~~which adds~~ that functions to add and drop information from an optical ring ~~to/from~~ to and from one or more switching elements.

Paragraph beginning on page 11, line 21

a 12

Although the invention is presented in the context of ~~the~~ an example optical ring network, it is appreciated that the invention can be applied to optical networks of any type of topology comprising any number of nodes and OADMs, any type of optical amplifiers and any type of noise (i.e. undesirable optical signal). Note that the invention is not limited to optical ring type networks but can be applied to other types of ~~network~~ networks as well. It is not intended that the invention be limited to the configurations and example embodiments described herein. It is appreciated that one skilled in the art may apply the principles of the present invention to numerous other types of optical network configurations without departing from the spirit and scope of the invention.

Paragraph beginning on page 12, line 11

a 13

The 'optical terminator' 136 comprises an M channel optical filter 138. The optical terminator functions to remove amplifier spontaneous emissions (ASE) noise, thermal noise, noise due to non-linearities, etc. and any other type of noise by filtering the optical signal. In a WDM based network, each individual wavelength of light is filtered and a multi-wavelength optical output is generated with the noise accumulation removed. The cleaned optical signals are then output as a multi-wavelength output signal.

Paragraph beginning on page 13, line 20

a 14

The combination of optical demultiplexer and multiplexer functions for each channel to only pass ~~for each channel~~ a band limited signal around the center frequency corresponding to the DWDM wavelengths supported by the particular ring network. The filtering out of the noise

accumulation occurs in the optical domain without the need for optical to electrical converters, electrical repeaters and electrical to optical conversion.

Paragraph beginning on page 14, line 32

@ 15 In particular, the optical network terminator 110 comprises a plurality of optical attenuators 116 adapted to have variable levels of attenuation that can be controlled electrically, a plurality of line monitors 118 and a controller ~~120~~ 122.

Paragraph beginning on page 16, line 14

@ 14 When utilizing the optical network terminator of the present invention to perform line equalization, it is preferred that any of the optical demultiplexer and multiplexer types used in the optical network terminator have similar optical characteristics as the optical components used in ~~any of~~ the multiplexers (add/drop or otherwise) ~~used in~~ within the nodes along the ring.